

National Environmental Public Health Tracking

Michael A. McGeehin, Ph.D., M.S.P.H.

Director

Division of Environmental Hazards and Health Effects

National Center for Environmental Health

Centers for Disease Control and Prevention (CDC)





Southern Puffer, *Sphoeroides nephelus*

Photo courtesy of Florida Marine Research Institute

Pufferfish illnesses

 **March 18, 2002**

- **2 persons in NJ ill after consuming pufferfish from FL**
- **Pufferfish confirmed positive for saxitoxin, not tetrodotoxin**

 **April 11, 2002**

- **CDC contacted by NJ Poison Control Center**

 **April 12, 2002**

- **One additional pufferfish illness in NJ**
- **Review of FL Poison Control Center files reveals that sporadic pufferfish poisoning has been ongoing since January 1, 2002.**

Neurologic Illness Associated with Eating Florida Pufferfish, 2002

Since January 1, 2002, human illness after eating pufferfish caught in waters near Titusville, Florida, has been reported ([Figure 1](#)). The illnesses were manifested by neurologic symptoms consistent with exposure to paralytic shellfish toxins. Laboratory analysis in early April confirmed the presence of saxitoxin in uneaten pufferfish. This report presents selected case examples and summarizes all cases reported to the Toxic Exposure Surveillance System of the American Association of Poison Control Centers (TESS).

Case Reports

Florida. On January 2, the poison control center in Tampa, Florida, received a call from an emergency department (ED) physician about a man aged 34 years who had numbness and tingling of his hands. On January 1, he had experienced vomiting and diarrhea after eating approximately eight mouthfuls of pufferfish recreationally caught in waters near Titusville. The man was admitted to the hospital for observation and was administered intravenous fluids. His symptoms gradually resolved, and he was released 2 days after admission.

Virginia. On March 12, a man aged 50 years and his son aged 24 years returned from a fishing trip to Titusville, where they had caught several pufferfish. Approximately 3 hours after they had cooked and eaten the fish, they contacted the Richmond poison control center complaining of numbness and tingling of the lips and tongue. The two men decided to monitor their symptoms at home. The younger man's symptoms were limited to oral numbness and resolved in 3--4 days. The older man's symptoms progressed during the evening to include numbness and tingling in the face, neck, and shoulders; the next day, he still had numbness in his mouth. The symptoms reportedly resolved over 2 weeks.

Pufferfish may contain a dangerous toxin called "saxitoxin."



Southern Puffer
Sphaeroides nephelus
Collected from the Indian
River Lagoon, Florida.

Saxitoxin cannot be removed by cleaning or cooking. Saxitoxin has no taste, color or smell.

Contact your personal physician immediately for diagnosis and treatment if you have eaten pufferfish and have any of the following symptoms:

- Tingling, burning or numbness of the mouth, tongue, lips, face, arms, fingertips and legs
- Possibly nausea or vomiting
- Drowsiness
- Incoherent speech
- Respiratory distress



**Do not eat pufferfish—they may be poisonous.
¡No coma pescado "puffer," puede ser venenoso!**

Multi-State Poisonings

✎ Florida, 15 cases

✎ New Jersey, 3 cases

✎ Virginia, 2 cases

✎ New York, 2 cases

✎ Would earlier detection have prevented these illnesses?



Exposure – Health Issues

- ✎ Air pollution – asthma, COPD, cardiovascular
- ✎ Water quality – acute and chronic conditions; birth defects
- ✎ Pesticide exposures – poisonings; chronic conditions
- ✎ Unknown exposure – cancer; lupus; neurological; developmental



Environmental Monitoring Data

- ✎ Assess program effectiveness
- ✎ Track contaminant levels in media
- ✎ Evaluate regulations
- ✎ Determine whether new regulations are needed
- ✎ Identify potential risks








Exposure Data

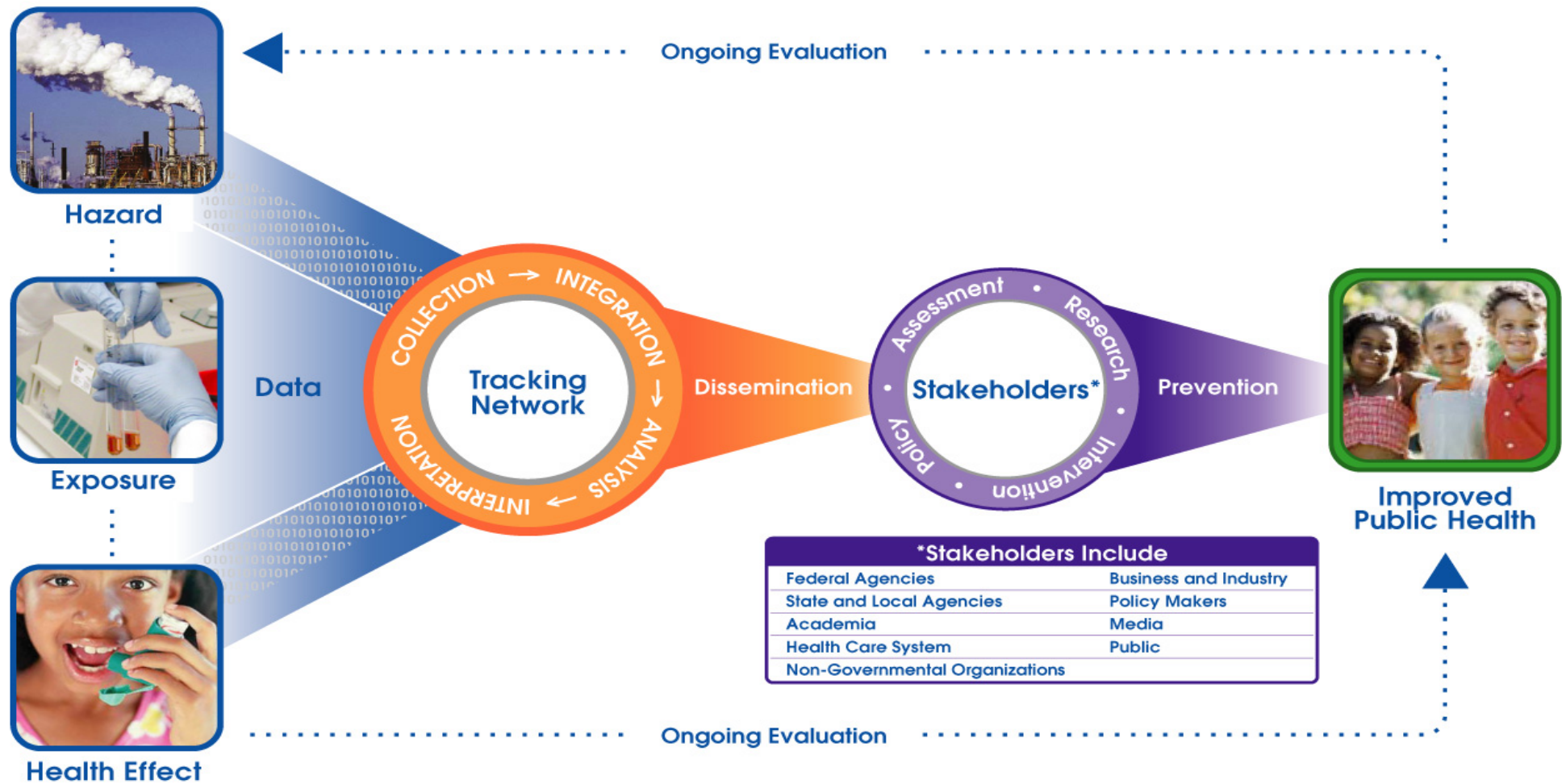
- ✎ Identify which chemicals are in people
- ✎ Monitor trends in levels
- ✎ Assess the prevalence of elevated levels
- ✎ Identify geographic variation



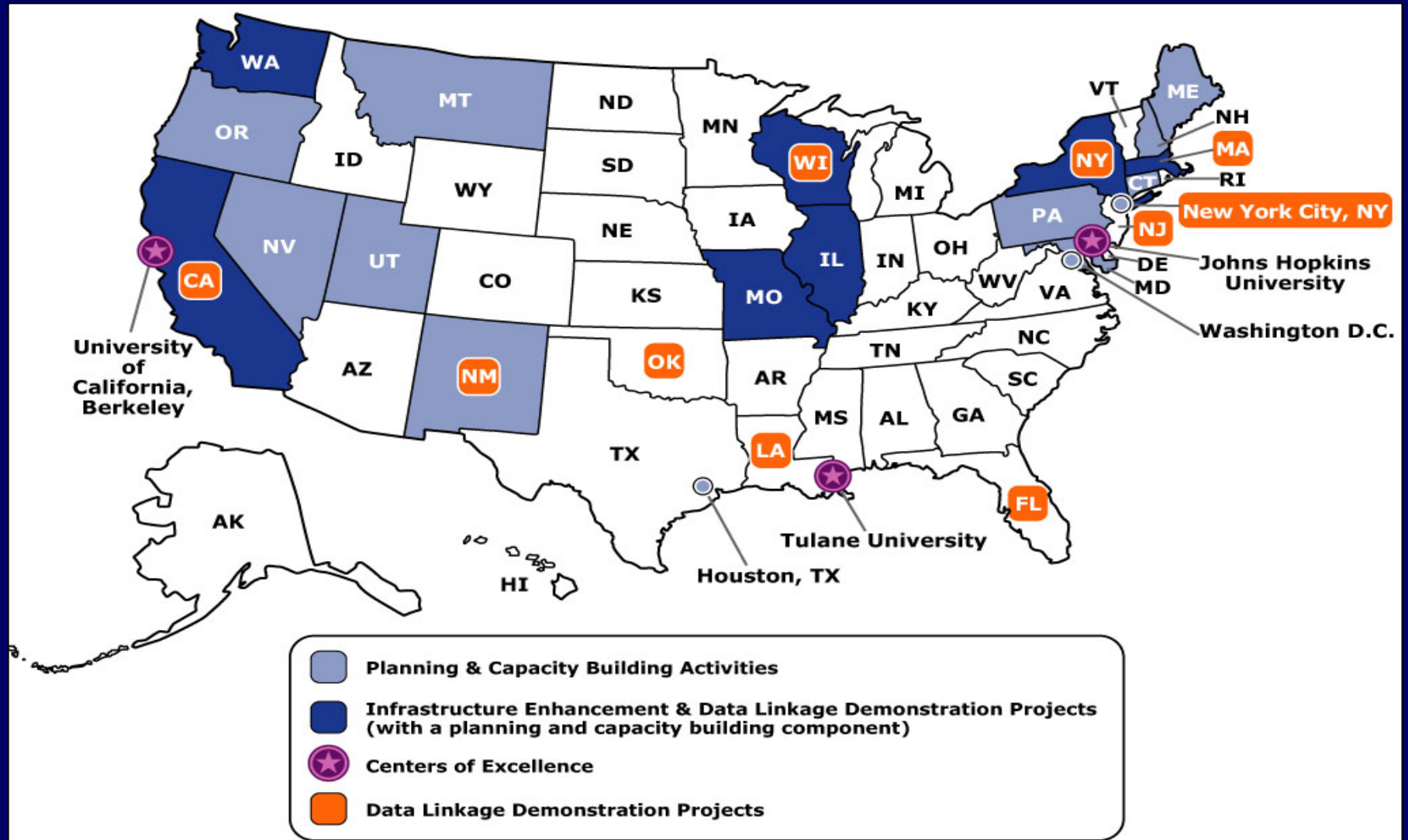
Surveillance Data

-  Assess disease burden
-  Identify populations at risk
-  Track trends
-  Develop interventions
-  Evaluate interventions






ENVIRONMENTAL PUBLIC HEALTH TRACKING







CDC's Environmental Public Health Tracking Program Grantees FY 2004



Challenges

-  **Focusing efforts**
-  **Incorporating exposure methods**
-  **Integrating data sources**
-  **Maintaining momentum**
-  **Communicating successes**

Summary

-  Tracking data are essential to successful public health
-  Success depends on cooperation among many organizations
-  Excellent progress to date
-  Important decisions on the horizon